UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/771,669	02/04/2004	Yoo-shin Lee	P2072US	3595

8968 7590 05/29/2008

DRINKER BIDDLE & REATH LLP
ATTN: PATENT DOCKET DEPT.
191 N. WACKER DRIVE, SUITE 3700
CHICAGO, IL 60606

EXAMINER	
WANG, KENT F	

ART UNIT	PAPER NUMBER
2622	

MAIL DATE	DELIVERY MODE
05/29/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/771,669	LEE ET AL.	
	Examiner	Art Unit	
	KENT WANG	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 May 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The amendments, filed on 05/07/2008, have been entered and made of record. Claims 1-20 are pending.

Response to Arguments

2. Applicant's arguments with respect to claims 1 and 8 rejected under 35 U.S.C. § 103 have been considered but are moot in view of the interpretation of the original cited references.

The applicant argues that Examiner did not treat the controller language in the preamble on the merits and has not considered nor treated the phrase "electrically connected with the controller" on the merits. The examiner understands the applicant's arguments but respectfully disagrees with the applicant's assessment. In response to applicant's argument, it is noted that Fischer discloses a block diagram of an exemplary mobile device 10 (Fig 1) that includes a USB controller 14 and a processing device 20. An electronic circuit is an electrical circuit that gave implicit the USB controller 14 and the processing device 20 are electrically connect electronic components as in claim 1. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to choose the electronic circuit as taught by Fischer as the advantages of electronic circuits are well known to the skilled person as the continued miniaturization and savings in power allows electronic circuits to be

packaged more densely, making possible compact battery charger thus charging the battery stably and optimally.

The applicant also argues that none of the references disclose, teach, contemplate or suggest the second feature recited in claim 8 - "a digital camera controller in communication with the battery recognition apparatus, the digital camera controller generating a battery selection signal that identifies the battery." The examiner understands the applicant's arguments but respectfully disagrees with the applicant's assessment. In response to applicant's argument, it is noted that Kondo discloses a digital camera connected to a computer by USB to charge a battery by receiving power from the computer through USB (USB interface cable 4, Fig 1), Yang discloses a battery recognition apparatus (a mobile phone battery charging seat) that distinguishes the battery from a plurality of batteries and a controller (DC converter & battery detect 2, Fig 3) in communication with the battery recognition apparatus (a mobile phone battery charging seat) (col. 1, line 54 to col. 2, line 46, Kondo) and Fischer discloses a transistor (transistor 404, Fig 5) externally connected to the charging portion (charge controller 402, Fig 5), the transistor (404) and the charging portion (402) cooperating to charge the battery according to the charge control signals from the control portion (the charge controller 402 regulates the amount of current passing through the current-carrying terminals of the transistor 404 in order to supply a constant charge current to the rechargeable battery) (col. 9, lines 28-39, Fischer) as in claim 8.

Applicant's arguments with respect to claim 12 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1-7 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Fischer (US 6,946,817) in view of Yang (US 6,184,652), US 6,025,698.

Regarding claim 1, Fischer discloses an apparatus for charging a battery of a portable electronic device (mobile communication device) that includes a controller controlling operation of the portable electronic device, the portable electronic device is being connected to a computer by USB port, the apparatus transferring power from the computer through the USB port, the apparatus comprising:

- a control portion (microprocessor 20, Fig 1) electrically connected (Fig 1 shown the microprocessor and the USB controller are connected electrically via a line which gave implicit the USB controller 14 and the processing device 20 are electrically connect electronic components) with the controller (USB controller 14, Fig 1), the control portion (20) generating charge control signals (signals 212 and 214) according to a battery selection signal that is output from the controller (col. 6, lines 13-19);
- a charging portion (charging subsystem 16, Fig 1) electrically connected with the control portion (20) (col. 6, line 60 to col. 7, line 23); and
- a transistor (transistor 404, Fig 5) externally connected to the charging portion (charge controller 402, Fig 5), the transistor (404) and the charging portion (402) cooperating to charge the battery according to the charge control signals from the control portion (the charge controller 402 regulates the amount of

current passing through the current-carrying terminals of the transistor 404 in order to supply a constant charge current to the rechargeable battery) (col. 9, lines 28-39).

Fischer does not disclose the battery selection signal distinguishing the battery from a plurality of batteries. However, Yang discloses the battery selection signal distinguishing the battery from a plurality of batteries installable in the portable electronic device (a mobile phone battery charging seat that distinguishes the battery from a plurality of batteries installable in the portable electronic device) (col. 2, lines 23-46, Yang).

It would have been obvious to one of ordinary skill in the art at the time this invention was made to choose the mobile phone battery charging seat as taught by Yang so as the system is capable to detect automatically the type of mobile phone battery and convert the voltage from the USB interface into desired voltage for charging the Mobile phone battery by means of converting IC in the converter thus the user dose not need to purchase different kinds of the battery charging seat as to the different material made of the batteries (col. 2, lines 23-46, Yang).

Regarding claim 2, Fischer discloses the charge control signals of the control portion comprise a charge start signal (soft-disconnect signal 212, Fig 3) to enable output of the charging portion (causes the soft-disconnect switch 202 to reset, disconnect and reconnect) (see col. 6, lines 21-34 and Fig 3).

Regarding claim 3, Fischer discloses the charge control signals of the control portion comprise a battery type signal (charge configuration signals 214) to control an output voltage level according to the battery selection signal (controls the power

supplied by the charging subsystem 16 to the rechargeable battery 18) (see col. 6, lines 21-34 and Fig 3).

Regarding claim 4, Fischer discloses the charge control signals of the control portion (the control signal from charge current controller 408) comprise a charge voltage control signal (monitor the voltage level) and a charge current control signal (control the amount of current), which are generated based on the detection of a charge current and a charge voltage from the charging portion (charge current controller 408, Fig 5), to control the charge current and the charge voltage (battery voltage curve 610 and battery current curve 620, Fig 7) (col. 7, lines 55-67).

Regarding claim 5, Fischer discloses a USB controller for controlling bidirectional data transmission (request capability 1320 and report capability 1340, Fig 12B) between the computer and the portable electronic device (the transmission of request and report data between the mobile device and the USB host, col. 14, lines 26-39 and Figs 12A and 12B).

Regarding claim 6, Fischer discloses the battery selection signal is input by a user (a mobile device user, see col. 2, line 58 to col. 3, line 4).

Regarding claim 7, Fischer discloses the battery selection signal is input by a battery recognition apparatus (keyboard 34 or auxiliary I/O 40, Fig 1) (col. 3, lines 44-61 and Fig 1).

5. Claims 8-11 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kondo (US 6,151,652) in view of Yang (US 6,184,652), and further in view of Fischer (US 6,946,817).

Regarding claim 8, Kondo discloses a digital camera (digital camera 1, Fig 1) connected to a computer (a computer 3, Fig 1) by USB to charge a battery by receiving power from the computer through USB (USB interface cable 4, Fig 1), the digital camera comprising:

- a USB charger including a USB controller (power supply control circuit 14, Fig 1) to transmit and receive data through a USB port of the computer (3), a control portion (CPU 12, Fig 1) to generate charge control signals corresponding to battery selection signal, a charging portion (charging circuit 143, Fig 8) electrically connected with the control portion (12) (col. 4, lines 1-18 and col. 6, lines 21-28);
- a digital camera controller (CPU 12, Fig 1) in communication with the battery recognition apparatus; and
- a power converting portion (constant voltage circuit 142, Fig 8) to receive power from the battery that is charged by the charger and generate and output power having a plurality of voltage levels (col. 5, lines 51-62).

Kondo does not explicitly disclose a battery recognition apparatus neither does Kondo disclose a transistor externally connected to the charging portion.

Yang discloses a battery recognition apparatus (a mobile phone battery charging seat) that distinguishes the battery from a plurality of batteries and a controller (DC converter & battery detect 2, Fig 3) in communication with the battery recognition apparatus (a mobile phone battery charging seat), the controller (2) generating a battery selection signal that identifies the battery (transforming to necessary charging voltage for different mobile phone battery) (col. 1, line 54 to col. 2, line 46, Kondo).

Fischer discloses a transistor (transistor 404, Fig 5) externally connected to the charging portion (charge controller 402, Fig 5), the transistor (404) and the charging portion (402) cooperating to charge the battery according to the charge control signals from the control portion (the charge controller 402 regulates the amount of current passing through the current-carrying terminals of the transistor 404 in order to supply a constant charge current to the rechargeable battery) (col. 9, lines 28-39, Fischer).

It would have been obvious to one of ordinary skill in the art at the time this invention was made to choose the mobile phone battery charging seat as taught by Yang and the transistor as taught by Fischer as modified by Kondo so that the charge controller maintains a substantially constant voltage level by controlling the current passing through the transistor (col. 10, lines 1-17, Fischer) and capable to detect automatically the type of mobile phone battery and convert the voltage from the USB interface into desired voltage for charging the Mobile phone battery by means of converting IC in the converter thus the user dose not need to purchase different kinds of the battery charging seat as to the different material made of the batteries (col. 2, lines 23-46, Yang).

Regarding claim 9, Fischer discloses the charge control signals of the control portion comprise a charge start signal (soft-disconnect signal 212, Fig 3, Fischer) to enable output of the charging portion (causes the soft-disconnect switch 202 to reset, disconnect and reconnect) (see col. 6, lines 21-34 and Fig 3, Fischer).

It would have been obvious to one of ordinary skill in the art at the time this invention was made to have used a controller as taught by Fischer as modified by Kondo so that it can reset the connection between the processing device and the data

lines, which results in the USB controller detecting a new connection to the USB interface (col. 6, lines 21-35, Fischer).

Regarding claim 10, Fischer discloses the charge control signals of the control portion comprise a battery type signal (charge configuration signals 214, Fischer) to control an output voltage level according to the battery selection signal (controls the power supplied by the charging subsystem 16 to the rechargeable battery 18, Fischer) (see col. 6, lines 21-34 and Fig 3, Fischer).

Regarding claim 11, Fischer discloses the charge control signals of the control portion (the control signal from charge current controller 408, Fig 5, Fischer) comprise a charge voltage control signal (monitor the voltage level) and a charge current control signal (control the amount of current), which are generated based on the detection of a charge current and a charge voltage from the charging portion (charge current controller 408, Fig 5, Fischer), to control the charge current and the charge voltage (battery voltage curve 610 and battery current curve 620, Fig 7, Fischer) (col. 7, lines 55-67, Fischer).

6. Claims 12-13, 15-18 and 20 are rejected under 35 U.S.C. § 103(a) as being unpatented by Fischer in view of Hsin (US 2003/0148663), and further in view of Jeansonne (US 2004/0203275).

Regarding claim 12, Fischer discloses a USB cable for transferring power from a USB receptacle to a portable electronic device (mobile communication device) with a power and data port, a battery and a device controller, the USB cable comprising:

- a first connector (a port at USB interface 12, Fig 1) configured to mate with the USB port (col. 2, lines 30-38);

- a second connector (a port at charging subsystem 16, Fig 1) configured to mate with the power and data port (col. 2, lines 39-47);
- a USB battery charger (a charging subsystem 16, Fig 1) including a charging portion (charging current control 408) that communicates with the device controller (charging controller 402) for receiving at least one signal relative to the battery, the charging portion (charging current control 408) adjusting power received from the USB receptacle relative to the at least one signal (charge configuration signal 214) for charging the battery (col. 2 line 39 to col. 3, line 4).

Fischer does not explicitly disclose a USB battery charger enclosed within the first connector neither does Fischer disclose at least two wires electrically connecting the first and second connectors.

Hsin discloses a USB cable for transferring power from a USB receptacle to a portable electronic device (portable device such as a cell phone), the USB cable comprising a USB battery charger enclosed within the connector (a multipurpose USB connector 10, Fig 2) ([0015], Hsin).

Jeansonne discloses a USB cable (16, Fig 1) at least two wires (a +5 volt wire 30 and a ground wire 32, Fig 2) electrically connecting the first (a first connector end 24, Fig 1) and second connectors (a second connector end 26, Fig 1) ([0016], Jeansonne).

It would have been obvious to one of ordinary skill in the art at the time this invention was made to choose the multipurpose USB connector as taught by Hsin and the cable as taught by Jeansonne as modified by Fischer so that the cable may

comprise a shielding layer and an outer protective layer ([0016], Jeansonne) and provide more flexible charging options ([0006], Hsin).

Regarding claim 13, Fischer discloses the charge control signals of the control portion comprise a charge start signal (soft-disconnect signal 212, Fig 3) to enable output of the charging portion (causes the soft-disconnect switch 202 to reset, disconnect and reconnect) (see col. 6, lines 21-34 and Fig 3).

Regarding claim 15, Fischer discloses the control portion (charging current control 408, Fig 5) comprises the device controller (charging controller 402, Fig 5) (vol. 7, lines 41-67).

Regarding claim 16, Fischer discloses a USB controller for controlling bidirectional data transmission (request capability 1320 and report capability 1340, Fig 12B) between the computer and the portable electronic device (the transmission of request and report data between the mobile device and the USB host, col. 14, lines 26-39 and Figs 12A and 12B).

Regarding claim 17, this claim recites same limitations as claim 16. Thus it is analyzed and rejected as previously discussed with respect to claim 16 above.

Regarding claim 18, Fischer discloses the at least two wires (a Vbus power line 24 and a data line 26, Fig 1) comprises:

- a first portion (first end of a Vbus power line 24) that interconnects a data interface of the first connector (a port at USB interface 12, Fig 1) with the USB controller (USB controller 14, Fig 1); and
- a second portion (second end of a Vbus power line 24) that interconnects a power interface of the first connector (a port at USB interface 12, Fig 1)

with the charging portion (charging subsystem 16, Fig 1) (col. 2, lines 40-57).

Regarding claim 20, Fischer discloses the charging portion (charging subsystem 16) comprises:

- a linear regulator (power supplies switch 414, Fig 5) for outputting power to the control portion (col. 7, lines 24-40 and col. 8, lines 10-51);
- a reference voltage generating portion (charge current control 408, Fig 5) for adjusting a voltage charging the battery (col. 7, lines 41-67); and
- a voltage/current regulator (a voltage regulator 412, Fig 5) including an attenuator, a current sense amplifier, a voltage regulation loop compensator and a current regulation loop compensator (col. 7, lines 24-40 and col. 8, lines 38-61).

7. Claim 14 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Fischer in view of Hsin and Jeansonne, and further in view of Odaohhara (US 6,424,123).

Regarding claim 14, note the discussion of claim 12 above. Fischer does not teach the control portion comprises a PWM module. However, Odaohhara teaches the control portion comprises a PWM module (PWM controller 112, Fig 4, Odaohhara) for outputting at least one of a voltage control signal (voltage control signal CS2, Fig 4) and a current control signal (charge control signal CS1, Fig 4) (vol. 8, lines 26-34, vol. 9, lines 18-26, and Fig 4, Odaohhara).

It would have been obvious to one of ordinary skill in the art at the time this invention was made to have used a PWM controller as taught by Odaohhara as modified by Fischer so that it can minimizing duty cycle to optimize efficiency of

matching the reference voltage and boost current delivery (col. 9, lines 3-26, Odaohhara).

8. Claim 19 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Fischer in view of Hsin and Jeansonne, and further in view of Hsu, US 6,798,173.

Regarding claim 19, note the discussion of claim 12 above. Fischer does not teach the first portion comprises a twisted-pair cable. However, Hsu teaches the first portion comprises a twisted-pair cable (col. 3, lines 10-52, Hsu).

It would have been obvious to one of ordinary skill in the art at the time this invention was made to have used a twisted-pair cable as taught by Hsu as modified by Fischer so that it can fitting the data transfer rates of USB and maximum length limitation and further canceling out electromagnetic interference, electromagnetic radiation and crosstalk between neighboring pairs (col. 3, lines 10-52, Hsu).

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Bar-On et al. (US 5,870,615), Pierce et al. (US 5,606,704), Dornier et al. (US 5,561,772), and Shinbori et al. (US 6,128,040).

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kent Wang whose telephone number is 571-270-1703. The examiner can normally be reached on 8:00 A.M. - 5:30 PM (every other Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ngoc-Yen Vu can be reached on 571-272-7320. The fax phone number for the organization where this application or proceeding is assigned is 571-270-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://portal.uspto.gov/external/portal/pair. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free)? If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KW
21 May 2008

/Ngoc-Yen T. VU/
Supervisory Patent Examiner, Art Unit 2622